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Land and Water Use

Local

Contra Costa County

The Contra Costa County General Plan incorporates policies developed by the DPC under the Delta Protection Act. The General Plan allows construction of public facilities regardless of underlying General Plan or zoning designations. Government Code Section 53091 states that county zoning ordinances “shall not apply to the location or construction of facilities for the production, generation, storage, or transmission of water.”

San Joaquin County

The San Joaquin County General Plan includes the incorporation of policies developed by the DPC under the Delta Protection Act. The Community Development Section (IV) of the General Plan addresses protection of open space and natural resources. Section VI of the General Plan addresses the protection of resources, including agricultural lands. However, public water supply and treatment facilities are exempt from these requirements as set forth in California Government Code Section 53091.

The proposed gate sites in San Joaquin County would be adjacent to areas designated General Agriculture (40-acre and 80-acre) and Open Space/Resource Conservation (Riparian Habitat, Significant Vegetation, and Mineral Resources) on the General Plan 2010 map of San Joaquin County. Development in areas designated General Agriculture is restricted to agricultural and related uses; other uses generally would require a conditional-use permit.

Because public water supply and treatment facilities are exempt from zoning requirements, as set forth in California Government Code Section 53091, the SDIP is not subject to the requirements of the Chapter 9 County Development Title, which serves as the County Zoning Code.

Significance Criteria

For the purposes of this analysis, impacts on land use are considered significant if implementation of the alternatives would:

- result in a substantial alteration of the present or planned land use patterns of an area, including physical disruption or division of an established community;
- conflict with adopted environmental plans and goals of local jurisdictions, or state or federal regulatory agencies, including general plans, community plans, and zoning; or
- convert a substantial amount of important farmland (lands designated as prime, statewide important, unique, or locally important) to nonagricultural use, or impair the agricultural productivity of important agricultural land.

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additional right-of-way and would not result in the conversion of additional land. (California Department of Water Resources 2003b.)

As described above, no significant land use conflicts would result from the construction of the permanent operable gates because most land use conversions would occur immediately adjacent to the gates and would result in the conversion of only a small amount of farmland. A total of approximately 21 acres would be converted in the south Delta region. Land uses adjacent to and in the vicinity of the gates would not be affected during construction of the gates. This impact is less than significant. No mitigation is required.

Impact LW-2: Conversion of Important Farmland to Nonagricultural Use as a Result of Constructing the Permanent Fish and Flow Control Gates. Constructing the gates would result in the permanent conversion of approximately 20 acres of farmland classified as *prime*, and less than 1 acre classified as *unique* (Table 7.1-1). Estimated agricultural conversion under Alternatives 2A–2C is shown in Table 7.1-1. Conversion of farmland is estimated to range from 1.16 acres at the head of Old River gate to 10.7 acres at the Grant Line Canal gate.

Table 7.1-1. Agricultural Conversion Estimates (acres)

Farmland Category	Alternatives 2A–2C		Alternative 3B		Alternative 4B	
	Permanent Conversion of Farmlands—Gates	Temporary Conversion of Farmlands—Spoils Ponds	Permanent Conversion of Farmlands—Gates	Temporary Conversion of Farmlands—Spoils Ponds	Permanent Conversion of Farmlands—Gates	Temporary Conversion of Farmlands—Spoils Ponds
Prime	20.3		9.6		1.16	
Unique	0.045		0.045			
Total Farmlands	20.35	205	9.65	205	1.16	205

Placement of spoils ponds for channel dredging activities has not yet been determined. However, most lands in the vicinity of the channels are prime and unique.

Total important farmlands in San Joaquin County in 2001: 630,990.

Total irrigated farmlands in Contra Costa County in 2001: 55,904.

Source: California Department of Conservation 2000.

The 21 acres of land that would be removed from agricultural production as a result of implementation of Alternatives 2A–2C represent substantially less than 1% of the approximately 630,990 acres of important farmland in San Joaquin County (Department of Conservation 2002a). The 21 acres that would be converted by Alternatives 2A–2C would include 20.3 acres of prime farmland (as defined by the NRCS) and 0.045 acre of unique farmland.

The temporary use of farmlands for spoils ponds and drying areas would result in the temporary conversion of up to 126 acres of prime farmland. (This number is calculated based on the assumption that all spoils ponds areas shown in Figure 2-10 would be used. However, it is anticipated that a substantially less amount of land would be needed to dry the spoils.) The spoils ponds would be used for up

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to seven years. They would be decommissioned and the areas would be returned to pre-project conditions. If suitable, the dredged material could be spread over these farmlands and used to stabilize levees. However, DWR and Reclamation have committed to ensuring that there is no permanent affect on the lands used for spoils ponds. Determination of the suitability of dredged material as well as potential disposal methods, are described in the Environmental Commitments section of Chapter 2.

A Farmland Conversion Impact Rating form, NRCS Form AD-1600, has been submitted to the NRCS for completion and review for consistency with FPPA (Appendix N). According to FPPA, if a project alternative site has an impact rating of less than 160 points, the site should be considered only minimally for protection, and no additional alternative project sites need to be evaluated. For Alternatives 2A–2C to exceed the 160-point standard established on the Farmland Conversion Impact Rating Form, the NRCS would need to assign at least 73 points to the relative value of the land to be converted.

Factors considered by NRCS in the evaluation of the relative value of the land to be converted are: total acres of prime and unique farmland affected by the project; total acres statewide and local important farmland affected by the project; percentage of farmland in county or local government unit to be converted; and percentage of farmland in government jurisdiction with the same or higher relative value. Because the total acreage of prime, unique, and local important farmland that would be converted is approximately 21 acres, and the total acreage to be converted represents substantially less than 1% of the total important farmland in San Joaquin County, the NRCS has determined that the relative value of the land to be converted will be 68 points and would not significantly contribute to the irreversible conversion of farmland to nonagricultural uses or be inconsistent with FPPA.

Because the total acreage of lands to be converted from important farmland to nonagricultural use would be spaced apart over a large geographical area, the remaining farmlands would continue to be usable for agriculture, and the relative value of the land would not exceed the NRCS threshold, this impact is considered less than significant. No mitigation is required.

Impact LW-3: Conflict with Williamson Act and Farmland Security Zone Contract Lands as a Result of Constructing the Permanent Fish and Flow Control Gates. Under Alternatives 2A–2C, 17.8 acres of the 21 affected by Alternatives 2A–2C are subject to Williamson Act contracts; 2.54 acres are currently under FSZ contract. Certain uses are considered compatible uses of land under Williamson Act contracts (contracted lands), including agricultural, open space, and recreational uses, and uses determined by the agency administering the contract to be consistent with the intent of the Williamson Act. Uses of contracted land other than agricultural and open space uses are typically considered incompatible. Conversion to public facility uses would require Williamson Act and FSZ contracts to be terminated only for the portions of contracted land acquired for the SDIP.

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7.7 Cultural and Paleontological Resources

Introduction

This section describes the existing environmental conditions and the consequences of the SDIP alternatives on cultural and paleontological resources in the south Delta and includes summaries of regional paleontology, prehistory, ethnography, and history. The primary concern related to cultural resources is potential damage or destruction to archaeological sites and buried human remains. These potential impacts are reduced to a less-than-significant level by implementing mitigation measures that are based on mitigation measures in the CALFED Programmatic ROD. The mitigation measures may include measures such as stopping work if archaeological materials or human remains are discovered during construction or dredging.

Summary of Significant Impacts

Table 7.7-S summarizes the significant impacts on cultural resources as a result of implementation of the project alternatives.

Table 7.7-S. Summary of Significant Impacts on Cultural Resources

Impact	Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
Impact CR-2: Inadvertent Damage to or Destruction of Buried Archaeological Sites and Human Remains.	2A-2C, 3B, 4B	Significant	CR-MM-1: Stop Work If Archaeological Materials Are Discovered during Construction or Dredging. CR-MM-2: Stop Work If Human Remains Are Discovered during Construction or Dredging.	Less than significant

Affected Environment

The SDIP is located in the Sacramento-San Joaquin Delta, which is one of the areas of California that archaeologists have studied most intensively. Prior to the 1960s, archaeologists working in the Delta focused on documenting large habitation sites, which are recognizable by mounds and midden soil (Cook and Elsasser 1956). The inception of cultural resources management in 1966 resulted in archaeological studies that documented a broader range of site types, including historic archaeological sites. Study of historic cultural resources has received somewhat less attention prior to the late 1980s, although at least one

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comprehensive overview of historic cultural resources and numerous project-specific historical studies have been conducted since that time (Owens 1991).

Sources of Information

The affected environment and impact assessments presented in this section are based on:

- review of existing information,
- consultation with interested parties,
- field surveys of the SDIP area of potential effects (APE),
- archival research, and
- evaluation of identified cultural resources (Jones & Stokes 2005⁴).

Records Search

The review of existing information included records search materials provided by DWR. The records searches were conducted at the Central California Information Center (CCIC) and the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS). Each regional information center of CHRIS maintains the state's database of previous cultural resource studies and known cultural resources for the counties in its jurisdiction; the CCIC maintains the database for a seven-county area that includes San Joaquin County, whereas the NWIC maintains the database for a 16-county area that includes Contra Costa County. The records maintained by the CHRIS, including cultural resource locations and cultural resource studies containing locations of cultural resources, are not accessible to the general public but to cultural resource professionals.

In addition to the state's database of previous cultural resource studies and known cultural resources, the record searches included reviews of historic topographic maps, local historical surveys and overviews, primary and secondary historical writings, and the Caltrans' Historical Bridges Inventory.

The records search indicates that portions of the SDIP have been surveyed for archaeological resources using methods that are considered professionally sound today (Archeo-Tec 1989, 1990; Baker and Shoup 1991; Peak & Associates 1997; Shapiro 1997; Shapiro and Syda 1997a, 1997b, 1997c; True et al. 1981; U.S. Army Engineer District 1986; West 1991, 1994; West and Scott 1990; Windmiller and Osanna 2000). The proposed dredge spoil areas, however, have not been previously surveyed for the presence of cultural resources. The SDIP APE consists primarily of those areas that will be subject to ground disturbance during construction and operation activities. A survey of historic architecture and other elements of the built environment (including water conveyance features) was conducted by a qualified architectural historian.

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Paleontological Research and Setting

The analysis of project impacts on paleontological resources is based on a review of existing paleontological, geological, cultural resource, and environmental review literature, as well as a records search through the University of California Museum of Paleontology (UCMP) online database (<<http://bscit.berkeley.edu/ucmp/>>).

A records search of the UCMP online paleontological database was conducted. The database documents reported paleontological finds around the world, including the project area. The records search was conducted by examining all entries for Contra Costa and San Joaquin counties. No paleontological finds are recorded in this database for the project area. The closest fossil find was located at the Tracy Gravel Pit, southwest of the project area approximately 8 miles. The find is a vertebrate fossil of Pleistocene age (10,000–1.6 million years old).

Literature pertinent to the geology and paleontology of the project vicinity were examined as well. The literature examined is cited in the setting information immediately below.

Paleontological Setting

Atwater (1982:Sheets 20, 21) maps the surface geology of the project area as undivided alluvium of supratidal floodplains, Holocene Epoch (10,000 years before present [B.P.] or 1950–present). Although Atwater (1982:8, Sheet 21) does not indicate the depth of these Holocene deposits, the approximate age and depth of deposits are inferable from radiocarbon dates obtained from subsurface peat deposits in the vicinity of CCF. The oldest date obtained was 4340±150 B.P. at a depth of 10.5 feet below ground surface or 12.1 feet below mean sea level. It is therefore reasonable to expect that Pleistocene-age fossil would not occur in the project area, as the maximum depth of channel excavation is 10 feet below the present channel bottom and structural excavation will not exceed 10 feet below the present ground surface, clearly within Holocene sedimentary deposits.

Delta sediments contain Holocene micro- and macrofossils of paleoecological interest, but sediments at proposed construction sites are too badly disturbed to be useful (West 1994:35). The project area has low sensitivity for the presence of significant Holocene fossils (Entrix and Resource Insights 1996:17-1, 17-8, 17-10, 17-15–17-16; West 1994:34–35).

Prehistoric Setting

Little is known of human occupation in the lower Sacramento Valley prior to 4500 B.P. (years before present, or 1950). Because of rapid alluvial and colluvial deposition in the valley over the past 10,000 years, ancient cultural deposits are deeply buried in many areas. The earliest evidence of widespread occupation of the lower Sacramento Valley/Delta region comes from several sites assigned to

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Known Cultural Resources

Based on the records search, a review of historic maps, and the architectural and archaeological surveys, five cultural resources were identified in the SDIP APE. These consist of the Grant Line/Fabian and Bell Canal, the West Canal, a levee system, a farm complex located near Middle River, and a building complex.

Grant Line/Fabian and Bell Canal

The Grant Line/Fabian and Bell Canal is an earthen canal approximately 200 feet wide extending roughly 10 miles from east to west along the southern portion of the APE. Levees are located on either side of the canal. The segment of the canal to the east is a single waterway that divides into two separate parallel canals, creating an island strip in the middle as it extends westward. The canal to the south of the island strip is referred to as the Fabian and Bell Canal, and the canal to the east is the Grant Line Canal.

West Canal

Because of limited access, a formal pedestrian survey of the West Canal was not possible for the purposes of this project. However, based on characteristics observed at nearby irrigation features (i.e., the Grant Line/Fabian and Bell Canal), it is assumed that the West Canal displays design and construction materials and methods similar to the irrigation features located in the vicinity.

Levee System

A system of earthen levees, which borders canals and rivers, is located throughout the project area. The levees vary in width and height but typically measure approximately 40 feet wide and 10 to 15 feet high.

Farm Complex

The farm complex is located on the south bank of the Middle River in the vicinity of the proposed Middle River gate site. The complex contains a wood-frame single-family residence and several metal-framed barns and outbuildings.

Grant Line/Fabian and Bell Canal Buildings

A cluster of historic buildings is located on the island strip in the Grant Line/Fabian and Bell Canal. The buildings are windowless wood-frame structures with gabled roofs.

Environmental Consequences

Assessment Methods—Cultural Resources

Impact assessments for cultural resources focus on properties eligible for listing in the National Register of Historic Places (NRHP) (historic properties), the California Register of Historic Resources (CRHR), or those properties considered significant resources or unique archaeological resources under CEQA.

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2. Identification of historic properties.
3. Assessment of adverse effects to historic properties.
4. Resolution of adverse effects to historic properties.

The APE for the SDIP is formally defined in the confidential cultural resources inventory and evaluation report prepared for this undertaking (Jones & Stokes 2004b). The APE is confined largely to those areas that will be subject to ground-disturbance during construction and operation of the SDIP.

State—California Environmental Quality Act

CEQA requires that public agencies (in this case, DWR) that finance or approve public or private projects assess the effects of the project on cultural resources. Cultural resources are defined as buildings, sites, structures, districts, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that if a project results in significant effects on important cultural resources, alternative plans or mitigation measures must be considered; only significant cultural resources, however, need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are:

- identify cultural resources,
- evaluate the significance of resources,
- evaluate the effects of a project on *all* resources, and
- develop and implement measures to mitigate the effects of the project only on *significant* resources.

Assessment Methods and Regulatory Setting— Paleontological Resources

NEPA and CEQA provide impetus for federal and state agencies to consider the effects of proposed projects on paleontological resources. Under NEPA, federal agencies are directed to consider the “degree to which the action may... cause loss or destruction of significant scientific, cultural, or historical resources” (40 CFR 1508.27[b][8]. Similarly, 14 CCR 15064.5(a)(3) states that a historical resource under CEQA shall include any “object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific... annals of California.” More broadly speaking, PRC 21060.5 stipulates that the term environment be taken to mean “the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance.” Paleontological resources, as a non-renewable source of information about the

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recent and distant past, are objects of potential scientific importance and are part of the mineral subset of the environment.

The Society of Vertebrate Paleontology provides guidance in defining a significant paleontological resource in its Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. The Standard Guidelines define significant nonrenewable paleontologic resources as "fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or botanical fossils except when present within a given vertebrate assemblage. Certain plant and invertebrate fossils or assemblages may be defined as significant by a project paleontologist, local paleontologist, specialists or special interest groups, or by Lead Agencies or local governments." (Society of Vertebrate Paleontology 2005.)

Areas of Controversy

Under CEQA, areas of controversy involve factors that reflect differing opinions among technical experts. Differences of opinion among technical experts stem from differing methodological or theoretical orientations. Although differences of theoretical and methodological approach exist among paleontologists, archaeologists, historians, and cultural anthropologists, these do not appear to affect the assessment of impacts that may result from the SDIP alternatives. Therefore, no areas of controversy relate to cultural or paleontological resources for the purposes of the SDIP.

Evaluation of Identified Cultural Resources

Grant Line/Fabian and Bell Canal, West Canal, Levee System, Farm Complex, Grant Line/Fabian and Bell Canal Buildings

Five known cultural resources are located in the project area. Fieldwork conducted by Jones & Stokes did not identify additional cultural resources in the project area. An evaluation was conducted to determine whether these features meet the criteria for listing in the NRHP or CRHP (Jones & Stokes 2004b). None of the features appears to meet the criteria for eligibility because of loss of integrity, lack of historical and architectural significance, or non-historic dates of construction. The State Historic Preservation Officer (SHPO) must concur with these determinations pursuant to 36 CFR 800.4. Resource evaluations are summarized below.

Grant Line/Fabian and Bell Canal

Grant Line/Fabian and Bell Canal follows the same alignment as it did in the 19th century from an engineering standpoint, but the canal bears little resemblance to a canal from the period of significance. Rather, it is very much a product of the

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NRHP or the CRHR, the type of impact, and the extent of the impact. Under CEQA, impacts on cultural resources are considered significant if they would adversely affect significant cultural resources. Similarly, pursuant to 36 CFR 800.5 regulations, a federal action or undertaking would have an adverse effect if the undertaking alters the characteristics that make a property eligible for inclusion in the NRHP. Specific actions under the SDIP that may adversely affect cultural resources include the modification of existing levees, construction of operable gates, construction of support structures and access roads, and channel dredging.

As indicated under Assessment Methods, impacts on cultural resources that may result from a federal action include:

- ground disturbance,
- modification and alteration of historic structures,
- visual and auditory intrusions to a resource's historic setting, and
- vandalism.

Physical damage or destruction to significant cultural resources, particularly archaeological sites, may affect the physical integrity of those resources and thus reduce their information or research potential (NRHP Criterion D or CRHR Criterion 4). Physical damage or alteration may also have deleterious effects on the characteristics of a cultural resource that convey its significant association with an important historical event, person, or architectural/design quality (NRHP Criteria A-C or CRHR Criteria 1-3).

Impacts on paleontological resources that may result from a proposed project include ground disturbance, burial, and vandalism (unauthorized collection or defacing). Removal of a paleontological resource from the context in which it is preserved and damage to or destruction of fossils are potentially significant impact mechanisms. Burial of known fossil deposits under fill may also constitute a potentially significant impact mechanism because future access to the deposits by professional paleontologists would be impeded or prevented.

Because no known fossil occurrences have been reported in the project area and previous studies indicate that the project area has low potential for the presence of significant fossiliferous deposits, the proposed project would have no impact on paleontological resources. Impacts on paleontological resources will not be considered further in this EIS/EIR.

CALFED Programmatic Mitigation Measures

The August 2000 CALFED Programmatic ROD includes mitigation measures for agencies to consider and use where appropriate in the development and implementation of project specific actions. The mitigation measures address the short-term, long-term and cumulative effects of the CALFED Program.

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Stage 2 (Operational Component)

Alternative 4B would not have an effect on the Trinity River flows or Shasta Reservoir storage according to CALSIM II modeling results (See Section 5.1, 6.1 and <http://modeling.water.ca.gov> for details). Therefore, there would be no adverse effects on Hoopa Valley Tribe fishery as a result of implementation of the SDIP. There is no impact and no mitigation is required.

Although the Colusa Rancheria is located adjacent to the Sacramento River, the river flows are not expected to fluctuate outside of the normal range with the implementation of Alternative 4B. Natural patterns of erosion and sedimentation along the river are expected to stay the same with the implementation of Alternative 4B. There is no impact and no mitigation is required.

The water that is proposed for pumping has already been contracted for, and all of the water used for the SDIP has been previously allocated. This project does not result in any new allocation of water. There is no impact and no mitigation is required.

2020 Conditions

Risks to ITAs associated with implementation of Alternative 4B under 2020 conditions would be similar to risks that would occur under 2001 conditions. Therefore, the impacts under 2020 conditions would be similar as those described above. All impacts are less than significant and no mitigation is required.

Cumulative Evaluation of Impacts

The SDIP would not result in any impacts on ITAs and therefore would not contribute to any cumulative impacts.

Comments Received From Tribes on the Draft EIS/EIR

The Hoopa Valley Tribe (Tribe) has expressed concerns about Reclamation's conclusions regarding potential impacts to the Tribe's federally-reserved fishing rights which are Indian trust assets. As stated in the Indian Trust Asset section above, these assets are legal property interests which the United States (Reclamation) must protect and maintain for the Tribe. The Tribe cites the following concerns about the SDIP DEIS and its potential to affect Indian trust assets:

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1. The SDIP DEIS “fails to discuss the fact that the proposed Trinity Reservoir carry-over storage may have negative effects on the survival of Trinity River fisheries and does not comply with the storage mandates of the Trinity River EIS”. The SDIP DEIS must conform to the Trinity River Mainstem Fishery Restoration EIS (Oct. 2000) and the Trinity River Record of Decision (“ROD”); it should clearly state that the proposed action here is not intended to change the Trinity ROD in any way”.

2. The SDIP DEIS “only includes a limited analysis of the effects on coho salmon and does not analyze effects, including temperature, on fall and spring Chinook, winter and summer steelhead, lamprey and sturgeon”.

3. The SDIP DEIS should acknowledge that CVPIA § 3406 (b)(23) mandates the “Secretary’s fiduciary duty to meet instream flow requirements of the Trinity River” and that the SDIP DEIS “description and manner of addressing Indian trust assets is incomplete and incorrect”.

Reclamation’s responses correspond to the numbered statements above by the Hoopa Valley Tribe concerning the SDIP DEIS and its potential to affect Indian trust assets, follow:

1. The SDIP DEIS/EIR does conform to the Trinity River Mainstem Fishery Restoration EIS and Record of Decision. The minimum flows required under the ROD were specified in the 2001 baseline and alternatives (except the wet year and above normal year flows are less than those specified in the ROD) and all Trinity River ROD flows were included in the 2020 baseline and alternatives. The CALSIM output indicates that there would be no changes in Trinity River monthly flows in the 2001 or the 2020 alternatives.

Since flows in the Trinity River would not change, it is expected that the temperature and other habitat conditions would remain the same. The SDIP will therefore have no effects on the federally reserved fishing rights on the Klamath and Trinity Rivers.

The Stage 1 decision (the decision on the physical/structural component of SDIP) will be based solely on this draft EIS/EIR and does not include any changes in reservoir operations. Additionally, the Stage 2 decision to follow after the Stage 1 decision is made (the Stage 2 decision is on operational component) will not be implemented until additional information is obtained and a separate analysis is completed pursuant to CEQA and NEPA.

Although for most resources, the 2001 baseline was used for purposes of CEQA analysis, the CALSIM model used the 72-year historical record of hydrology, which represents a range of possible hydrological conditions for the CVP and SWP. This allows the project to be compared to a variety of year types including wet, dry and average years. Therefore, the CALSIM outputs are not based solely on 2001. Appendix Q of the Draft EIS/EIR contains a specific discussion of the potential effects of SDIP on the Trinity River Division of the CVP. Summary graphs show the comparison of 2020 baseline and Alternative 2A results for

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annual carryover storage, monthly Trinity River flows, and monthly Trinity exports to the Sacramento River. Except for some slight month-to-month modeling variability, these monthly values are not changed by the SDIP.

The Tribe may review the CALSIM results for the SDIP baselines and alternatives that are available in a single Excel spreadsheet (MacroSets_RussOutputs_10-18-05.xls) from the SDIP website (ftp://ftp.modeling.water.ca.gov/pub/SDIP/DSM2_SDIP_results).

No changes in minimum monthly Trinity River releases at Lewiston are simulated for the 2001 or 2020 alternatives. No additional exports from the TRD are simulated for the 2001 or 2020 alternatives. No changes in the pattern of carryover storage were simulated for the 2001 or 2020 alternatives.

2. The SDIP DEIS focuses on Coho salmon life history and the possible effects the project could have on the various Coho life-stages, such as adult migration, spawning and juvenile rearing. The analysis uses Chinook salmon water temperature criteria because the water temperature ranges and timing for adult and juvenile migration are comparable (See Appendix K, Table K.1-7). As stated in 1.above, since flows in the Trinity River would not change, it is expected that the temperature and other habitat conditions would remain the same.

While it is recognized that different species of fish have slightly different temperature criteria and life history strategies, Chinook salmon temperature criteria were used in the temperature assessment as representative of migration and rearing criteria for salmonids. Coho rearing life-stage provides an assessment for all months, although Coho would generally rear in the tributaries, which are unaffected by the Lewiston release flows. Steelhead have similar water temperature ranges to Coho. Lamprey and sturgeon have water temperature criteria that are slightly warmer than for Chinook salmon.

Chinook salmon temperature criteria indices (Table 6.1-7) were used for Coho because they have similar temperature tolerances. Table K.1-14 indicates that the temperature indices for rearing were 1.0 (<67 F) for all months. The temperature indices for adult migration (September-December) were less than 1.0 (greater than 60 F) in 10 months. The temperature modeling results indicated that Trinity River at North Fork water temperatures did not change with any of the project alternatives. The Lewiston water temperatures increased slightly in a few months, reducing the temperature indices (Table K.2A-16).

A complete temperature evaluation was not made for the other species, because the Chinook temperature criteria were representative and sufficient to indicate that no temperature effects on the Trinity River will result from the SDIP because no substantial changes in Trinity River flows, Trinity exports, or Trinity Reservoir carryover storage will occur under SDIP.

3. The Hoopa Valley Tribe appropriately cites in its comments the Central Valley Project Improvement Act (CVPIA) section 3406(b)(23) as Congressional

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direction insuring “the development of recommendations based on the best available scientific data, regarding permanent instream fishery flow requirements . . .” and specifically directed the completion of the 12-year Trinity River Flow Evaluation Study (TRFES)¹. Furthermore, upon concurrence of the Secretary and the Hoopa Valley Tribe, this section 3406(b)(23),-congressionally mandates the Secretary to “implement accordingly²” any increase to the minimum Trinity River instream fishery releases and the operating criteria and procedures.

Should SDIP be realize, the CVP water it conveys will be subject to many authorities and constraints including provisions of Federal Law such as CVPIA, rules and regulations promulgated by the Secretary of the Interior, and applicable provisions of the Trinity River Mainstem Fishery Restoration Record of Decision(ROD), signed by the Chairman of the Hoopa Valley Tribe and the Secretary of the Interior, Bruce Babbitt, on December 19, 2000.

As the Tribe has noted, the Trinity River Mainstem Fishery Restoration Record of Decision ROD “culminated nearly twenty years of detailed, scientific efforts, conducted over the course of the past four Administrations, and documents the selection of actions determined to be necessary and appropriate to restore and maintain the anadromous fishery resources of the Trinity River”and “The necessity for these actions results from the various statutory obligations of the Department as well as the federal trust responsibility to the Hoopa Valley and Yurok Indian Tribes.”³

“For reasons expressed in this ROD, the Department’s agencies are directed to implement the Preferred Alternative as described in the FEIS/EIR . . .” and “This alternative best meets the statutory and trust obligations of the Department to restore and maintain the Trinity River’s anadromous fishery resources, based on the best available scientific information, while also continuing to provide water supplies for beneficial uses and power generation as a function of Reclamation’s Central Valley Project (CVP).”⁴

The ROD “recognizes that restoration and perpetual maintenance of the Trinity River’s fishery resources requires rehabilitating the river itself, restoring the attributes that produce a healthy, functioning alluvial river system”.⁵

Therefore, because (1) Reclamation’s federal trust obligations to the Hoopa Valley Tribe are depicted and directed in the Trinity River Mainstem Fishery Restoration Record of Decision and CVPIA, and that (2) SDIP must utilize CVP water in accordance with all applicable legal requirements, and that (3) the Trinity River Mainstem Fishery Restoration Record of Decision and the CVPIA are among those requirements, and that (4) the nearest Indian trust assets to the SDIP project area, in the north-of-the-Delta area, is the Colusa Rancheria

¹ Section 3406(b)(23)(A) of the Central Valley Project Improvement Act (CVPIA) P.L. 102-575 (1992)

² Section 3406(b)(23)(B) of the Central Valley Project Improvement Act (CVPIA) P.L. 102-575 (1992)

³ Paragraph 1, Page 2 from the Trinity River Mainstem Fishery Restoration Record of Decision (ROD)

⁴ Paragraph 2, Page 2 from the Trinity River Mainstem Fishery Restoration Record of Decision (ROD)

⁵ Paragraph 4, Page 2 from the Trinity River Mainstem Fishery Restoration Record of Decision (ROD)

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(adjacent to the Sacramento River) located 90 miles north the project area, and lastly (5) there are no Indian tribes with a federally-reserved rights to the water potentially conveyed through the SDIP, Reclamation concludes that the SDIP will have no impact, direct or indirect, on the Hoopa Valley Tribe's trust assets or the trust assets of any other federally-recognized tribe, and therefore no changes are made to the final EIS.⁶

⁶ Required statement as directed in the Environmental Compliance Memorandum No. ECM97-2, dated May 8, 1997.

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Water Operations Management Team, ~~and~~ Data Assessment Team, and Operations and Fisheries Forum

The Water Operations Management Team (WOMT) is a group composed of executives from DWR, Reclamation, DFG, USFWS, and NOAA Fisheries. The group has the responsibility of making decisions about CVP and SWP operations for the following week based on proposed project operations. The WOMT has not historically ~~does not normally~~ included stakeholders, however they may be invited depending on the subject of the meeting. The Data Assessment Team (DAT) is an advisory group that is part of the CALFED Ops Group, and is composed of biologists and SWP and CVP operations staff. This group meets on an as needed basis to make agency recommendations to WOMT. The DAT identifies abundance and distribution of special-status species to determine if changes in operation and pumping would reduce take. This input is presented to the WOMT for consideration in making final decisions about operations of CVP and SWP facilities. Implementation of the SDIP would require decisions by the WOMT regarding operations of the gates. Additionally, as needed, the Operations and Fisheries Forum, a group made up of representatives from the member agencies and interested parties, convenes when information regarding take of listed species, or other factors or urgent issues need to be addressed.

Long-Term Solutions

The third element of the Framework Agreement called for a joint state-federal process to develop long-term solutions to problems in the Bay-Delta Estuary related to fish and wildlife, water supply reliability, natural disasters, and water quality. The intent is to develop a comprehensive and balanced plan that addresses all of the resource problems. This effort is carried out under the policy direction of the CALFED agencies.

The public has a central role in the development of a long-term solution. A group of more than 30 citizen-advisors selected from California's agriculture, environmental, urban, business, fishing, and other interests with a stake in finding long-term solutions for the problems of the Bay-Delta Estuary was chartered under the Federal Advisory Committee Act as the Bay-Delta Advisory Council (BDAC). BDAC advised the CALFED agencies on its mission and objectives, the problems to be addressed, and proposed actions. BDAC also provided a forum for public participation and reviewed reports and other materials prepared by CALFED staff.

In 2000 the BDAC was terminated and was replaced by the Bay-Delta Public Advisory Committee (BDPAC) which was chartered in 2001. The purpose of this new committee is to provide recommendations to the Secretary of the Interior, the Governor of California, other participating federal agencies, and California Bay-Delta Authority (Authority) on the implementation of the

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CWA Section 404(b) requires that the Corps process permits in compliance with guidelines developed by EPA. These guidelines (404(b)(1) Guidelines) require that there be an analysis of alternatives available to meet the project purpose and need including those that avoid and minimize discharges of dredged or fill materials in waters. Once this first test has been satisfied, the project that is permitted must be the least environmentally damaging practical alternative before the Corps may issue a permit for the proposed activity.

Actions typically subject to Section 404 requirements are those that would take place in wetlands or stream channels, including intermittent streams, even if they have been realigned. Within stream channels, a permit under Section 404 would be needed for any discharge activity below the ordinary high water mark, which is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter or debris.

The CALFED ROD for the Final Programmatic EIS/EIR includes a CWA Section 404 memorandum of understanding (MOU) signed by Reclamation, EPA, the Corps, and DWR. Under the terms of the MOU, when a project proponent applies for a Section 404 individual permit for CALFED projects, the proponent is not required to reexamine program alternatives already analyzed in the Programmatic EIS/EIR. The Corps and EPA will focus on project-level alternatives that are consistent with the PEIS/EIR when they select the least environmentally damaging practicable alternative at the time of a Section 404 permit decision.

A 404 (b)(1) Alternatives information package will be prepared for the SDIP and submitted to the Corps and EPA.

Note: Section 404 does not apply to authorities under the Rivers and Harbors Act of 1899 except that some of the same waters may be regulated under both statutes; the Corps typically combines the permit requirements of Section 10 and Section 404 into one permitting process.

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) must also comply with CWA Section 401. In California, the authority to grant water quality certification has been delegated to the State Water Board, ~~and applications for water quality certification under CWA Section 401 are typically processed by the RWQCB with local jurisdiction.~~

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Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States.

For purposes of this project, Reclamation will obtain certification from the ~~Central Valley RWQCB~~ State Water Board ~~CB~~ under Section 401 of the CWA.

River and Harbors Appropriation Act of 1899

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, etc., across any navigable water, or placing obstructions to navigation outside established federal lines and excavating from or depositing material in such waters, require permits from the Corps. Navigable waters are defined in section 329.4 as:

Those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity.

In the Corps Sacramento District, navigable waters of the U.S. in the project area that are subject to the requirements of the River and Harbors Appropriation Act include Middle River, San Joaquin River, Old River, and all waterways in the Sacramento-San Joaquin drainage basin affected by tidal action (U.S. Army Corps of Engineers 2003). Sections of the River and Harbors Act applicable to the SDIP are:

Section 9

Section 9 (33 USC 401) prohibits the construction of any dam or dike across any navigable water of the United States in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army. Where the navigable portions of the water body lie wholly within the limits of a single state, the structure may be built under authority of the legislature of that state, if the location and plans or any modification thereof are approved by the Chief of Engineers and by the Secretary of the Army.

Section 10

Section 10 (33 USC 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters, is unlawful unless the work has been authorized by the Chief of Engineers.

Section 13

Section 13 (33 USC 407) provides that the Secretary of the Army, whenever the Chief of Engineers determines that anchorage and navigation will not be injured thereby, may permit the discharge of refuse into navigable waters. In the absence

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obstructs the natural flow or changes the bed, channel, or bank of any river, stream, or lake, or uses material from a streambed must be previously authorized by DFG in a Lake or Streambed Alteration Agreement under Section 1602 of the Fish and Game Code. This requirement may in some cases apply to any work undertaken within the 100-year floodplain of a body of water or its tributaries, including intermittent streams and desert washes. As a general rule, however, it applies to any work done within the annual high-water mark of a wash, stream, or lake that contains or once contained fish and wildlife, or that supports or once supported riparian vegetation.

Activities associated with SDIP that require 1602 authorization and a Streambed Alteration Agreement include the modification and setting back of the existing levees, placement of fish and flow control gates, and conveyance improvements. These actions would result in the alteration of the flow within water bodies and occur within the annual high-water mark of water bodies that contain and wildlife, and support riparian vegetation.

The current temporary barriers program operates under DFG 1602 authorization. This EIS/EIR document will be used as the CEQA review document by DWR for either continued authorization of activities under the existing agreement, or for the issuance of a new Streambed Alteration Agreement (California Fish and Game Code 1600).

Porter-Cologne Water Quality Control Act of 1969

In 1967, the Porter-Cologne Act established the State Water Board and nine RWQCBs as the primary state agencies with regulatory authority over California water quality and appropriative surface water rights allocations. Under this act (and the CWA), the state is required to adopt a water quality control policy and WDRs to be implemented by the State Water Board and nine RWQCBs. The State Water Board also establishes WQCPs) and statewide plans. The RWQCBs carry out State Water Board policies and procedures throughout the state.

WQCPs, also known as basin plans, designate beneficial uses for specific surface water and groundwater resources and establish water quality objectives to protect those uses. WQCPs and water resource management plans relevant to SDIP include the WQCP for the Sacramento and San Joaquin River Basins; San Francisco Bay Basin WQCP; WQCP for the Tulare Lake Basin; Inland Surface Waters Plan; the Enclosed Bays and Estuaries Plan; and the Delta Plan. Delta-specific beneficial uses protected through water quality objectives are municipal and domestic water supply, agricultural supply, industrial supply (process and service), recreation (water contact and non-contact), freshwater habitat (warm- and coldwater), fish migration (warm- and coldwater), fish spawning (warmwater fish), wildlife habitat, and navigation. The basin plans define surface water quality objectives for several parameters, including suspended material, turbidity, pH, DO, chlorides, flow, bacteria, temperature, salinity, toxicity, ammonia, and sulfides.

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thorough implementation strategy describing 145 actions to protect the Bay-Delta Estuary. Ten program areas are identified in the CCMP. For each program area, the CCMP presents a problem statement, discusses existing management, identifies program area goals, recommends approaches, and states objectives and actions specific to the program. With regard to wetlands, the CCMP focuses on the restoration and ultimate enhancement of ecological productivity and habitat value. SFEP defines the estuary as the waters of San Francisco Bay, San Pablo Bay, Suisun Bay, and the Sacramento-San Joaquin River Delta. The proposed project boundaries include these waters, their watersheds, and lands in the Delta as delineated by Section 12220 of the State Water Code. Implementation of the SDIP would be consistent with this program as it would assist DWR and Reclamation in improving water quality within the south Delta.

Area of Origin

During the years when the SWP and CVP were being developed, area of origin legislation was enacted to protect local northern California supplies from being depleted. County of origin statutes provide for the reservation of water supplies for counties in which the water originates when, in the judgment of the State Water Board, an application for the assignment or release from priority of a State water right filing would deprive the county of necessary water for present and future development. The proposed project will have ~~little to no effect on water supplies for North of Delta users~~ little to no effect on water supplies for North of Delta users ~~are of origin water rights~~; therefore, this project is consistent with the area of origin legislation (see Section 5.1, Water Supply, for more detail).

Delta Protection Act of 1959

The Delta Protection Act, enacted in 1959 (not to be confused with the Delta Protection Act of 1992, which relates to land use), declares that the maintenance of an adequate water supply in the Delta—to maintain and expand agriculture, industry, urban, and recreational development in the Delta area and provide a common source of fresh water for export to areas of water deficiency—is necessary for the peace, health, safety, and welfare of the people of the state, subject to the County of Origin and Watershed Protection laws. The act requires the SWP and the CVP to provide an adequate water supply for water users in the Delta through salinity control or through substitute supplies in lieu of salinity control. In 1984, additional area of origin protections were enacted to prohibit the export of groundwater from the Sacramento River and the Delta basins unless export is in compliance with local ground water plans. Water Code Section 1245 also holds municipalities liable for economic damages resulting from their diversion of water from a watershed. (Bulletin 160-93.) Implementation of the SDIP would improve water quality and quantity for south Delta users, while allowing a greater diversion and pumping capacity at SWP Banks for south of Delta water contractors.

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Growth-Inducing Impacts

Further uncertainty is created by the following:

- Some contractors such as Metropolitan, the San Diego County Water Authority, and the Santa Clara Valley Water District have multiple sources of water that provide varying amounts of water over time or with varying reliability, making it difficult to determine whether an increment of additional SWP or CVP water would remove a barrier to growth or rather be put to use offsetting existing groundwater pumping or other surface water supplies.
- Some local jurisdictions have sufficient supplies to serve all projected growth in their general plans, so additional supplies would not induce or accommodate additional growth.
- Growth in some jurisdictions may be limited by water supplies but also may be constrained by other factors, such as the availability of land, utilities (such as sewer service and electrical service), transportation facilities, schools, wastewater treatment facilities or local growth management ordinances. These other factors may continue to limit growth, even if water supply reliability increases.
- Jurisdictions where growth is limited by water supply can attempt to obtain water from new sources if additional SWP water is not provided through this project.
- Some retailers and jurisdictions have the ability to store water during years when supplies are plentiful and hold it over to be used in years when supplies are scarce. This makes it more difficult to assess the growth-related effects of additional supplies for local jurisdictions.
- Local jurisdictions, not water suppliers, have control over land use decisions, both how much and where growth will occur. It would be extremely difficult to determine specific lands that would be developed as a result of the additional increment of water provided by the SDIP, and what resources would be affected by that additional growth.
- Local jurisdictions ~~throughout in southern~~ California have typically based land-use planning on growth forecasts, which are usually based on factors such as demographic and economic forces, and not constrained by the availability of adequate water supplies (LSA Associates, Inc. 2003; EIP Associates 2004).

Some contractors, such as the Central Coast Water Authority, may rely solely on SWP supplies. The Santa Barbara/Goleta area and the area served by the Newhall County Water District are two examples of regions of California in which local governments have imposed limits on growth based on limits in their supply of water, and where additional water could lead to additional growth. While the Santa Barbara/Goleta area receives water from the SWP, the Monterey Peninsula area relies exclusively on local supplies. In areas that rely on the SWP or CVP and in which growth is limited by water supplies, providing additional water could lead to additional growth.

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feet in order to improve Bay Area water quality and water supply reliability. An expanded reservoir would require a new or expanded Delta intake, with a capacity of up to 1,750 cfs for the maximum reservoir size. Locations being considered for the new Delta intake include Old River and adjacent channels. Water from an expanded reservoir could be delivered to Bay Area water users through a connection to the South Bay Aqueduct.

The Los Vaqueros Reservoir expansion study is in the early planning stage. A Draft Planning Report, including an evaluation of the environmental impacts of an expanded Los Vaqueros Expansion alternative on the Delta, was released in May 2003 (California Bay-Delta Authority 2004). Studies conducted for the Draft Planning Report show that there would be no significant effect on water levels for current Delta water users, or on river velocities. An expanded Los Vaqueros could change the timing of diversions from the Delta. Passage of Measure N in March 2004 allows further environmental and engineering studies to continue, with planned environmental review public scoping meetings to be held in early 2005 and a tentative EIR/EIS schedule of 2007. Effects of a Los Vaqueros expansion are considered in the qualitative cumulative impact assessment below.

The Los Vaqueros Reservoir Expansion could contribute to cumulative effects on water supplies and associated resources. The project ~~would not result in~~ ~~could~~ ~~increase~~ water supplies available for export in those years when Los Vaqueros Reservoir otherwise would have spilled because Measure N included a condition that expansion would not result in exports to southern California. ~~However,~~ ~~this~~ project could also modify the timing and magnitude of upstream reservoir releases in wet years. Because this project is in its early environmental documentation stages, the cumulative analysis will be qualitative.

Upper San Joaquin River Basin Storage Investigation

The Upper San Joaquin River Basin Storage Investigation is considering a range of approaches to increase water supplies through possible enlargement of Millerton Lake at Friant Dam. Reclamation and DWR are conducting the Upper San Joaquin River Basin Storage Investigation to consider a 700,000-acre-foot Millerton Lake expansion and other alternatives to providing surface storage in the upper San Joaquin River Basin. As stated in the CALFED ROD, the goal of the project is to “contribute to restoration of and improve water quality for the San Joaquin River and facilitate conjunctive water management and water exchanges that improve the quality of water deliveries to urban communities.” The investigations are ongoing. The first of a series of reports analyzing alternatives was completed in 2003, with a second report, an “Initial Alternatives Information Report,” due for completion in spring 2005. A final feasibility report and environmental review would be prepared at a later unscheduled date.

This project has the potential to improve fish conditions in the San Joaquin River and could increase flows into the Delta, depending on operation of Friant Dam

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- expansion of Pacheco Reservoir.

The Low Point Improvement Project is currently in the planning stages. A NOP/NOI to prepare an EIS/EIR was released in August 2002, and the EIS/EIR is expected to be released in 2006, with possible implementation sometime during or after 2007. Implementation of this project would restore operational flexibility of the San Luis Reservoir and improve reliability of water deliveries to CVP contractors. This project is included in the qualitative cumulative analysis.

Stockton Deep Water Ship Channel DO Improvements

CALFED Ecosystem Restoration Program

The goals of the CALFED ERP are to:

- recover 19 at-risk native species and contribute to the recovery of 25 additional species;
- rehabilitate natural processes related to hydrology, stream channels, sediment, floodplains and ecosystem water quality;
- maintain and enhance fish populations critical to commercial, sport and recreational fisheries;
- protect and restore functional habitats, including aquatic, upland and riparian, to allow species to thrive;
- reduce the negative impacts of invasive species and prevent additional introductions that compete with and destroy native species; and
- improve and maintain water and sediment quality to better support ecosystem health and allow species to flourish.

The ERP plan, which is divided into the Sacramento, San Joaquin, and Delta and Eastside Tributary regions, includes the following kinds of actions:

- develop and implement habitat management and restoration actions, including restoration of river corridors and floodplains, reconstruction of channel-floodplain interactions, and restoration of Delta aquatic habitats;
- restore habitat that would specifically benefit one or more at-risk species;
- implement fish passage programs and conduct passage studies;
- continue major fish screen projects and conduct studies to improve knowledge of their effects;
- restore geomorphic processes in stream and riparian corridors;
- implement actions to improve understanding of at-risk species;
- develop understanding and technologies to reduce the impacts of irrigation drainage on the San Joaquin River and reduce transport of contaminant (selenium) loads carried by the San Joaquin to the Delta and the Bay; and

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- implement actions to prevent, control, and reduce impacts from nonnative invasive species.

ERP actions contribute to cumulative benefits on fish and wildlife species, habitats, and ecological processes and are considered in the qualitative analysis of cumulative effects.

Stockton Deep Water Ship Channel DO Improvements

A CALFED ecosystem restoration action is a management plan to (improve) the low DO in the Stockton DWSC. One component of this action is the construction and demonstration of a dissolved oxygen aeration device in the Stockton DWSC. The DO demonstration project is being implemented by DWR and is in the final stages of construction. The demonstration aeration device uses liquid oxygen as the source of oxygen gas to inject small bubbles into two devices (200 feet deep wells) where the high hydrostatic pressure allows most of the oxygen gas to dissolve. Each device consists of two concentric tubes, with the water and gas bubble flowing down the center 20-inch diameter tube and then up the 30-inch diameter outer tube. Two screened pumps with a flow capacity of 25 cfs pump river water into the wells and then discharges the water back into the DWSC through a multi-port diffuser located at a depth of 15 feet. The device will be operational in the spring of 2007, and is designed to deliver 10,000 lbs/day of DO to the DWSC, which is enough to raise the DO by 1.0 mg/l within a 2-mile section of the DWSC each day of operation.

CALFED Levees Program

The goal of the CALFED Levees Program is to uniformly improve Delta levees by modifying cross sections, raising levee height, widening levee crown, flattening levee slopes, or constructing stability berms. Estimates predict that there are 520 miles of levees in need of improvement and maintenance to meet the PL 84-99 standard for Delta levees. The levees program continues to implement levee improvements throughout the Delta, including the south Delta area. The program is included in the qualitative cumulative analysis.

City of Stockton Drinking Water Intake

Other CVP/SWP-Related Projects

Freeport Regional Water Project

FRWP is a regional water supply project being developed on the Sacramento River near the town of Freeport by the Sacramento County Water Agency (SCWA) and EBMUD, in close coordination with the City of Sacramento and

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Temperature objectives for the Trinity River are set forth in State Water Board Water Rights Order 90-5 (WR 90-5). Operationally, for the purposes of establishing the Trinity River flows, the water year type will be forecasted by Reclamation based on a 50% forecast on April 1. To avoid warming and to function most efficiently for temperature control, water is exported for the Trinity River Basin through Whiskeytown Reservoir and into the Sacramento River Basin during the late spring.

San Luis Drainage Reevaluation Project

The Bureau of Reclamation San Luis Unit provides irrigation water and includes portions of Kings, Fresno, and Merced Counties on the west side of the San Joaquin Valley. Over time, irrigation of the land has caused shallow water tables to rise closer to the surface. By 1990 nearly 337,000 acres (nearly 47% of the land within the Unit) had water tables within 20 feet of the ground surface.

Methods exist for removing shallow groundwater from the root zone. The drainwater that is collected, however, contains concentrations of naturally occurring elements, such as salt, selenium, and boron that pose a threat to the environment and drinking water supplies. The San Luis Drainage Feature Re-Evaluation challenge is to remove, treat, and/or contain drainwater in a manner that protects the environment.

Reclamation has been developing potential drainage disposal options that will provide for the implementation of drainage service to the Unit. This analysis has resulted in a Draft Environmental Impact Statement that examines the alternatives and provides information about the potential environmental effects of providing drainage service.

Reclamation anticipates that the agency-preferred alternative will be one of the three In-Valley/Land Retirement Alternatives or some variation. Land retirement included in these alternatives range from 92,600 to 308,000 acres.

Delta Improvements Package

The DIP is an outline for CALFED agencies to implement a series of projects, programs, and activities that will help meet the balanced implementation goal of the CALFED Program. Many of the activities identified in the DIP were also described in the CALFED ROD. However, some actions (listed below) were not, but are also reasonably foreseeable and are included in the cumulative impacts assessment:

- San Joaquin River Salinity Management Plan—DWR and Reclamation developed a plan to maintain compliance with all existing Delta water quality salinity objectives. The RWQCB adopted an amendment to the basin plan and forwarded it to the State Water Board for final action. The State Water Board adopted Resolution 2005-0087 on November 16, 2005, approving an

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amendment to the Water Quality Control Plan for the Central Valley Region to incorporate a Total Maximum Daily Load for the control of salt and boron discharges into the lower San Joaquin River has not set a hearing date.

- Vernalis Flow Objectives—The San Joaquin Water Quality Management Group, an interagency working group, is currently looking at the salinity problem in the lower San Joaquin River and the DO problem in the Stockton DWSC. A report of findings and recommendations is in process.
- San Joaquin River Dissolved Oxygen—CALFED agencies would develop a plan to help improve water quality in the Stockton DWSC. This includes the demonstration of an aeration device in the DWSC.
- Franks Tract—State and federal agencies would evaluate and implement, if appropriate and authorized, a strategy to significantly reduce salinity levels in the south Delta and at the CCWD and SWP/CVP export facilities and improve water supply reliability by reconfiguring levees and/or Delta circulation patterns around Frank Tract while accommodating recreational interests.
- Relocation of M&I Intake—state and federal agencies will work with CCWD to relocate their intake to the lower part of Victoria Canal should the above actions not provide acceptable continuous improvements in Delta water quality.
- Delta Regional Ecosystem Restoration Implementation Plan (DRERIP)—This plan is intended to refine the existing planning foundation specific to the Delta, refine existing Delta-specific restoration actions, and provide guidance for Delta specific ERP tracking, performance evaluation, and adaptive management feedback.
- Science Actions and Commitments—several studies would be conducted, including a Focused Study on South Delta Hydrodynamics, Water Quality, and Fish; Focused Study on Delta Smelt and Fish Facilities; South Delta Fish Facilities; and Performance Evaluation and Monitoring Program.

Water Transfers and Acquisition Programs

CALFED Environmental Water Account

The EWA is designed to mitigate for water loss during times when CVP and SWP pumping is reduced in an effort to avoid harming fish as they migrate through the Delta. The EWA was created to address two problems: declining fish populations and unreliable water supplies. Its purpose is to better protect fish by making it possible to modify water project operations in the Bay-Delta and still meet the needs of water users. To do that, the EWA buys water from willing sellers or diverts surplus water when safe for fish, then banks, stores, transfers and releases it as needed to protect fish and compensate water users. The EWA has set a goal of acquiring up to 188,000 acre-feet of water each year through purchases. EWA expects to obtain some water through additional

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174-acre parcel of land approximately 1 mile west of the San Joaquin County line and 1 mile southeast of the Contra Costa County line. The actual footprint of the plant would be approximately 55 acres, with the remainder of the parcel available for agricultural leases. Water for cooling and other power plant processes would be provided by Byron Bethany Irrigation District. The plant is expected to have a 30 to 50 year operating life. Environmental documentation equivalent to an EIS/EIR (Revised Presiding Member's Proposed Decision) was completed in January 2003 and approval from the Energy Commission was granted in August 2003.

Water Facilities Expansion Project

The City of Sacramento is in the process of expanding and replacing facilities at the E. A. Fairbairn Water Treatment Plant (WTP) and the Sacramento River WTP. The purpose of this project is to allow the City to reliably meet increasing water demands and to allow diversions to be shifted from the American River to the Sacramento River. The Fairbairn WTP is being expanded from approximately 90 mgd to 200 mgd. The Sacramento River WTP is being expanded from approximately 110 mgd to 160 mgd. Construction at both plants includes some new facilities as well as improvements to some of the existing facilities. It is expected that the Fairbairn WTP construction will be completed within approximately 32 months, while construction at the Sacramento River WTP is expected to be completed within approximately 34 months. Construction at both facilities may ultimately require up to 164,000 linear feet of transmission pipeline improvements. A final EIR was completed for this project in November of 2000, and construction of the project began in October of 2001.

Stockton Delta Water Supply Project

The Stockton Delta Water Supply Project (DWSP) will develop a new supplemental water supply for the Stockton Metropolitan Area by taking in water from the Delta on the southwest tip of Empire Tract, and pumping that water through a ~~miles of~~ pipeline running along the north side of Eight Mile Road. From there, the water will be pumped to a surface water treatment plant. The DWSP will be constructed in phases with the initial phase to be completed in 2010. Initially, the DWSP will have the capacity to treat and deliver up to 30 mgd or 33,600 acre-feet per year of water. ~~Immediately, a~~ Approximately one third of Stockton's water needs will be met by this facility. Ultimately by about 2050, the water treatment plant would be expanded to treat 160 mgd or 125,900 acre-feet per year of water. The EIR for this project was certified on November 8, 2005 and a water right permit was issued on December 20, 3005.

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Delta protections would continue in effect, and these future projects would be required to show how they are being met. Potential cumulative effects of storage and conveyance projects on south Delta level and flow conditions are considered less than significant.

Other CALFED Programs

Other CALFED Program actions, including the Drinking Water and Reliability Program and the Levee Program actions, could result in some localized effects on Delta waterways (i.e., intake and levee improvements), but none would be expected to significantly affect south Delta tidal hydraulic conditions because they would not affect water level and flow conditions. The CALFED ERP actions would not substantially affect cumulative Delta tidal level and flow conditions.

In addition to CALFED programs identified in the Programmatic ROD, a number of programs in the DIP, including Franks Tract improvements, Delta Cross Channel operations, and the Through-Delta Facility, could have generalized cumulative effects on water level and flow conditions in the Delta. The potential for cumulative, localized tidal hydraulic effects in the south Delta is believed to be unlikely because of the distance of these projects from SDIP improvements. Specific projects related to improving San Joaquin River salinity and DO conditions would have a positive effect on flow conditions.

Other Local Development Projects

Other local transportation and development projects in the vicinity of SDIP improvements (i.e., SR 4 Bypass, Mountain House and River Islands developments) are not expected to adversely affect Delta tidal hydraulic conditions because these projects would not modify level or flow conditions in Delta channels and would not affect operation of the CVP or SWP. The River Islands development project proposes to widen the Paradise Cut channel south of Stewart Tract to improve flood conveyance capacity and provide habitat for fish and wildlife. This project would also result in creation of back-bays on Old River adjacent to Stewart Tract. These changes are not expected to significantly affect level or flows on Old River or Paradise Cut and are not currently known to have adverse effects on other south Delta channels in the vicinity of Stewart Tract.

Additionally, the EIR for the DWSP indicates that there are negligible changes in flow and stage downstream of the DWSP intake, and that cumulative effects of the DWSP (in which the SDIP was included) would be minimal, with changes in stage of approximately 0.01 feet and changes in flows of less than 1%. It is not expected that these minor changes in flow and stage combined with SDIP and other projects would result in a significant cumulative impact to tidal hydraulics.

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Water Quality

Cumulative future water quality impacts in the Delta can result from future changes in river inflow water quality, as well as future conditions of reduced Delta outflow. No other projects that are assumed in SDIP or OCAP CALSIM analyses are proposed in the vicinity of the SDIP permanent gates or CCF gates that could have a substantial effect on south Delta water quality. The quantifiable cumulative changes in south Delta water quality would be associated primarily with SDIP permanent gate operations and operation of the CCF gates.

There is a limit to the magnitude of the future salinity changes expected in the Delta channels. The D-1641 objectives for maximum EC are generally satisfied by CVP and SWP operations in the Delta. Delta outflow is therefore already regulated, and these minimum Delta outflows are included in the CALSIM simulations that are used for the DSM2 inputs. Water quality objectives for salinity at Vernalis are expected to maintain the future San Joaquin River EC values at about what they are simulated to be in the 2001 baseline and 2020 baseline conditions. Other potential future changes in inflow water quality, or increased discharges of treated wastewater, in the Delta are expected to be independent of the increased SWP Banks pumping anticipated with SDIP alternatives. These potential water quality changes are considered to be independent of the SDIP and will not be increased with the SDIP alternatives. These future changes in Delta water quality are expected to occur with or without the SDIP alternatives, and can be evaluated only generally.

Some future water transfers during the July–September period will be possible without the SDIP. As described above, the water quality effects from these additional exports are assumed to be compensated for by “carriage water” that will slightly increase Delta outflow during the transfer. No cumulative water quality impacts from any additional water transfers with SDIP are anticipated.

Some of the additional water quality actions and projects that are being considered and investigated by the CBDA Drinking Water Quality and CALFED Science Programs, such as described in the Delta Improvement Program, and the proposed San Luis Drainage Reevaluation Program may provide improvements in the south Delta salinity and DOC concentrations. These potential improvements would reduce the future baseline conditions, but would not likely reduce the SDIP water quality effects. However, the adaptive operations of the tidal gates will provide a substantial new tool for management of south Delta water quality. Incremental improvements, from whatever future baseline conditions develop, will be possible by careful monitoring of water quality and appropriate operations of the south Delta tidal gates.

No significant cumulative water quality impacts beyond those impacts identified for the SDIP alternatives would result from combining other past, present, or reasonably foreseeable projects.

Cumulative changes in DWSC DO concentrations would be considered less than significant during summer months because when the south Delta water level and

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quality objectives have been met, the head of Old River gate would be operated to improve San Joaquin River DO conditions.

Other Water Storage and Conveyance Projects

Other water storage and conveyance projects outlined above are not expected to significantly affect cumulative water quality conditions in the south Delta beyond those discussed for SDIP because operating these projects would require compliance with current Delta flow and water quality requirements. Operating SWP Banks facility at a future permitted pumping capacity of 10,300 cfs is not expected to significantly affect south Delta salinity, DOC and DO conditions because operations at this pumping capacity would be similar to operations described for SDIP at 8,500 cfs, and current Delta outflow and water quality criteria would be required at an increased level of SWP pumping. Future storage reservoirs or expansion of existing reservoirs would not result in substantial changes in south Delta water quality because operating storage reservoirs typically involves storing river flows during high flow periods when water quality conditions are not a concern in the Delta and releasing flows during high demand summer periods, when south Delta salinity and DO conditions are less desirable. All of the existing flow-related water quality requirements of D-1641 and other Delta protections would continue in effect, and these future projects would be required to show how they are being met. Potential cumulative effects of storage and conveyance projects on Delta water quality conditions are considered less than significant.

Other CALFED Programs

Other CALFED Program actions, including the Drinking Water and Reliability Program, ~~and the Levee Program actions,~~ and the Stockton DWSC DO Improvements, could result in some localized effects on Delta waterways (i.e., intake and levee improvements), but none would be expected to significantly affect south Delta water quality because current water quality protections would remain in place and these projects would not substantially affect Delta flow or water quality conditions. The CALFED ERP actions would not substantially affect cumulative Delta water quality conditions. The Stockton DWSC aeration device demonstration project is expected to substantially improve the low DO in the DWSC.

In addition to CALFED programs identified in the Programmatic ROD, a number of programs in the DIP, including Franks Tract improvements, San Joaquin River Salinity Management Plan, and Vernalis Flow Objectives, are proposed to improve salinity and DO conditions in the San Joaquin River and Delta. Overall, it is expected that these programs will have a beneficial effect on cumulative water quality conditions in the south Delta.

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Other Local Development Projects

Other local transportation and development projects in the vicinity of SDIP improvements (i.e., SR 4 Bypass, Mountain House and River Islands developments) are not expected to adversely affect Delta water quality conditions because these projects would result in only minor localized effects on Delta waterways and would employ standard construction methods to minimize erosion and turbidity effects. Cumulative construction-related water quality effects would be similar to the types identified for SDIP Alternative 2A and could be additive, but are considered less-than-significant impacts because impacts on water quality would be minor and temporary. No additional mitigation is required.

Fish

The cumulative fisheries resource impacts of the SDIP Stage 1 and other past, present, and future projects include changes in Delta fish habitat and minor direct loss of fish during construction activities. The SDIP would result in the loss of vegetation that provides migration, rearing, and spawning habitat for fish species in the Delta. Other projects occurring in the Delta such as Mountain House and River Islands may result in a minor additional reduction of fish habitat. Projects occurring in the Delta and in the Sacramento and San Joaquin River systems to restore habitat are ongoing under the Environmental Restoration Project (ERP). Loss of fish habitat in the Delta from the SDIP and other projects would be mitigated. This mitigation, combined with the ERP will ensure that the overall cumulative effect on fish habitat is less than significant. Additionally, with the incorporation of mitigation measures identified in the Vegetation and Wetlands section, losses of fish habitat would be compensated and there would be no net loss of habitat. Therefore, the SDIP Stage 1 contribution to this cumulative impact is not considerable.

The cumulative fisheries resource impacts of the SDIP Stage 2 and other reasonably foreseeable projects have been addressed quantitatively during ESA consultation for the coordinated operations of the CVP and SWP and the OCAP (National Marine Fisheries Service 2004; U.S. Fish and Wildlife Service 2004a). The BOs provide a project description for formal and early consultation elements, including a description of conservation measures (e.g., Water Rights Decision 1641, VAMP, EWA, CVPIA b(2), and an adaptive management process that is primarily centered on use of the Delta Smelt Risk Assessment Matrix (DSRAM) (National Marine Fisheries Service 2004; U.S. Fish and Wildlife Service 2004a). Formal consultation covers the effects of proposed 2020 operations of the CVP and SWP, including:

- long-term EWA to provide targeted pumping reductions,
- continued (improved) operation of the Tracy Fish Collection Facility,
- operation of the DMC/California Aqueduct Intertie,
- continued (improved) operation of the Skinner Fish Facility,

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Table 10-1. Continued

Project	Criterion 1: Is the action under active consideration?	Criterion 2: Does the action have recently completed environmental documentation or are environmental documents in some stage of active development?	Criterion 3: Would the action be completed or operational within the timeframe being considered for the SDIP (assumed to be 2020)?	Criterion 4: Does the action, in combination with the SDIP alternatives, have the potential to affect the same resources?	Role in Cumulative Assessment		
					Quantitative	Qualitative	Notes
Other CVP/SWP-Related Projects							
Freeport Regional Water Project	Y	Y	Y	Y	X		
Trinity River Mainstream Fishery Restoration Program	Y	Y	Y	Y	X		
Sacramento Valley Water Management Agreement (Phase 8)	Y	YN	Y	Y		X	Most of the project components involve only the cooperation of northern California water users to increase water use efficiency. This will likely be accomplished by 2020.
San Luis Drainage Reevaluation Project	Y	Y	Y	Y	X	X	The potential actions undertaken by the San Luis Drainage Reevaluation Project are not included in CALSIM II. Therefore, these potential actions are evaluated qualitatively.
Delta Improvements Package	Y	Y	Y	Y	X	X	The potential actions undertaken by the Delta Improvements Program not included in CALSIM II. Therefore, these potential actions are evaluated qualitatively.
Water Transfer and Acquisition Programs							
CALFED Environmental Water Account	Y	Y	Y	Y	X		It is quantitative because 190,000 acre-feet were purchased and an additional 190,000 acre-feet will be gained each year through modification of pumping procedures
CALFED Environmental Water Program	Y	N	Y	Y		X	The program has not been implemented because of funding constraints, but should be by year 2020.
Delta Improvements Package	Y	Y	Y	Y		X	The Delta Improvements Package will be implemented in phases and includes actions that have already been implemented.
Local Projects							
State Route 4 Bypass Project	Y	Y	Y	Y		X	The first phase of this project is complete and the next phases are scheduled for 2004-10, depending on available funding.
Mountain House	Y	Y	Y	Y		X	
River Islands	Y	Y	Y	Y		X	

Chapter 12

Chapter 12 List of Preparers

Following is a list of persons who contributed to preparation of this EIS/EIR. This list is consistent with the requirements set forth in NEPA and CEQA (40 CFR 1502.17 and Section 15129 of the State CEQA Guidelines).

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Chapter 13

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Appendix J

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Methods for Assessment of Fish Entrainment in
State Water Project and Central Valley Project Exports

water diversions are located at Antioch and Pittsburg, but the entrainment in cooling water intakes is not expected to change with the SDIP. The potential entrainment of particles (and fish) in cooling water intakes has not been included in this particle-tracking analysis.

Particle Tracking Model—Simulated Entrainment of Fish Behaving as Passive Particles

The basis for this entrainment assessment is hypothesis 2, that the number of fish entrained is related to the interaction between Delta channel tidal hydraulics and fish distribution. Key elements of the assessment method include the assumed distribution and abundance of fish in the Delta channels, the effects of diversion on channel flows, and subsequent effects of channel flows on the distribution and movement of fish and exposure to diversion intakes. Fish are assumed to behave and move as passive particles within the water column. The movement and entrainment of particles are described for two separate study periods: (1) the full range of CVP and SWP pumping with Delta outflows of 5,000 cfs, 7,000 cfs, or 12,000 cfs; and (2) the full range of VAMP conditions during spring.

The full range of possible CVP and SWP pumping, from 0 cfs to ~~15,900~~14,900 cfs (CVP 4,600 cfs and SWP 10,300 cfs), was simulated for August 1997 tidal and flow conditions. The simulation of the full range of SWP and CVP pumping illustrates entrainment and distribution in the Delta channels over a 30-day period for the following Delta conditions:

- the head of Old River barrier was open;
- there were no temporary barriers in the south Delta channels;
- the Delta Cross Channel gates were open;
- historical tides for August 1977 were used;
- San Joaquin River inflow was 1,500 cfs;
- CVP pumping was 0 cfs or 4,600 cfs;
- SWP pumping was 0 cfs, 3,340 cfs, 6,680 cfs, 8,500 cfs, or 10,300 cfs;
- Contra Costa Water District (CCWD) diversion was 207 cfs, North Bay diversion was 104 cfs;
- agricultural diversions throughout the Delta were 2,871 cfs;
- seepage totaled 974 cfs but did not entrain particles;
- agricultural drainage was 1,329 cfs and so net channel depletion was 2,516 cfs;
- net Delta outflow was held at 5,000 cfs, 7,000 cfs, or 12,000 cfs; and
- Sacramento River inflow was variable to support the specified pumping and outflow.

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